primer comprises a 3' portion which is complementary to the region of DNA and a 5' portion which is identical in sequence to all or part of a probe on a solid support and not complementary to the region of DNA;

labeling the amplified DNA products to form labeled amplified DNA products;

hybridizing the labeled, amplified DNA products to the probe on the solid support;

detecting labeled, amplified DNA products hybridized to the probe on the solid support, wherein the presence of said labeled amplified DNA products on the solid support indicates that the nucleic acid sample contains at the polymorphic locus a nucleotide which is the same as the 3' terminal nucleotide of the primer.

10. (Amended) The method of claim 8 wherein quantities of fluorescent label at known locations on the solid support are compared, wherein the known locations represent different allelic forms of the polymorphic locus having different nucleotides at the polymorphic locus, thereby determining [and] a ratio of nucleotides at the polymorphic locus in the sample [is determined].

Add new claims 23-38.

--23. A method to prepare samples for analysis to determine a nucleotide at a polymorphic locus in a nucleic acid sample, comparing the steps of:

amplifying a region of DNA comprising a polymorphic locus in the sample to form amplified DNA products using a primer which terminates at its 3' end at the polymorphic locus, wherein the primer comprises a 3' portion which is complementary to the region of DNA and a 5' portion which is identical in sequence to all or part of a probe on a solid support and not complementary to the region of DNA;

labeling the amplified DNA products to form labeled amplified DNA products;

hybridizing the labeled, amplified DNA products to the probe on the solid support, thereby forming prepared samples for analysis.

24. The method of claim 23 wherein the step of labeling couples a labeled nucleotide to a 3' end.

25. The method of claim 23 wherein terminal transferase catalyzes the step of labeling.

26. The method of claim 23 wherein the nucleotide is fluorescently labeled.

27. The method of claim 23 wherein the nucleotide is radioactively labeled.

28. The method of claim 23 wherein the nucleotide is enzymatically labeled.

29. The method of claim 23 wherein the nucleotide is epitopically labeled.

30. The method of claim 26 further comprising the step of:

optically detecting fluorescent label on the solid support.

31. The method of claim 30 wherein two primer pairs are employed, wherein the first primer of each of the first and second pairs of primers terminate at their 3' ends in distinct nucleotides, and wherein each 5' portion of each of said first primers is identical in sequence to all or part of a distinct probe at a known location on the solid support.

32. The method of claim 30 wherein quantities of fluorescent label at known locations on the solid support are compared, wherein the known locations represent different allelic forms of the polymorphic locus having different nucleotides at the polymorphic locus, thereby determining a ratio of nucleotides at the polymorphic locus in the sample.

33. The method of claim 32 wherein the ratio of nucleotides at two or more polymorphic loci are determined simultaneously.

34. The method of claim 23 wherein the sample comprises DNA from two or more individuals.

35. The method of claim 23 wherein two or more regions of DNA, each of which comprises a polymorphic locus, are amplified in a single reaction mixture.

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36. The method of claim 23 wherein the solid support is beads.

37. The method of claim 23 wherein the solid support is a microtiter dish.

38. The method of claim 23 wherein the solid support is a high density array.--

REMARKS

The Rejection Under 35 U.S.C. §112, Second Paragraph

Claims 1 and 10 have been amended as suggested by the Examiner to clarify the intended meaning of the claims. In claim 1 the additional step suggested by the Examiner was added. In new claim 23, however, the additional step is not added, but the preamble is altered to correspond with the result of the original three steps of original claim 1. It is respectfully submitted that all claims are now clear and definite.

The Rejection of Claims 1, 5, and 7 Under 35 U.S.C. §102(b)

Claims 1, 5 and 7 are rejected as anticipated by Vary U.S. 4,851,331. This rejection is respectfully traversed. It is axiomatic that a reference must teach each element of a claimed invention in order to anticipate it under 35 U.S.C. §102. Vary fails to teach each element recited in claim 1, therefore the rejection must fail.

First, the claimed method recites as its first step "amplifying". Amplifying is a term of art which connotes processes like polymerase chain reaction (PCR) in which two primers are used, each of which hybridizes to opposite strands of a double stranded nucleic acid. See Figure 1 of the specification, step 1, which depicts an ASPCR (allele specific PCR) primer with tag and a downstream primer. See page 6, line 11 to page 7, line 2, where the pair of primers is described in